The 13th Annual SJSU College of Science Student Research Day
May 5, 2017
10:00am to 1:00pm
Duncan Hall

PROGRAM

SPECIAL POSTER
College of Science students matriculating to Graduate or Professional Schools in Spring 2017 and students working in off-site programs during Summer 2017.

RESEARCH POSTERS
Presenting students are underlined.

Department of Biological Sciences

1. Sensory Activity is Required to Maintain Synaptic Integrity in *C. elegans*.
   Ben Barsi-Rhyne, Kristine Miller, Kristine E. Andersen, Chris Vargas, Jacqueline Pyle, Aruna Varshney, Alex Duong, Alan Tran, Bryan Tsujimoto, Joy Li, Joori Park
   Faculty: Miri VanHoven

2. Investigating a Novel Role for SAX-3/Robo and SLT-1/Slit in Mediating Axon Outgrowth Termination in *C. elegans*.
   Doris Coto Villa, Vanessa Jimenez, Anthony Thomas, Zanett Kieu, Johann Zaroli, Thuy-Linh Duong, Christopher Vargas, William Wung, Kelly Benedetti, Joori Park, Eric Chang, Amber Farooqi
   Faculty: Miri VanHoven

3. Investigations of the Molecular Mechanisms That Mediate Neural Circuit Formation.
   Katherine Watters, Aruna Varshney, Raakhee Shankar, Khristina Magallanes, Yunus Koroglu, Joy Li
   Faculty: Miri VanHoven

4. Identifying Compounds From Walnuts That Target Cell Cycle Proteins.
   Stephanie Dsouza, Jasmine Garcia, Jobelle Peralta
   Faculty: J. Brandon White

5. Effects of High Fat Diet on Follicle Count Ratios in Mouse Ovaries.
   Bianca Opara, Dania Abid
   Ralph Valentine Crisostomo, Fauna Yarza
   Faculty: Elizabeth Skovran
   Collaborators: Megan Pryce, Cabrillo College; Isabel Velosa, Michigan State University; Nabila Khan, Michigan State University; Cecilia Martinez-Gomez, Michigan State University

7. Lipid Degradation by a Novel Bacterial Lipase/Esterase.
   Kyaw Lynn, Eric Kwan
   Faculty: Cleber Ouverney

8. Rise in Interleukin-17-Producing Invariant Natural Killer T Cells During *Bordetella Pertussis* Infection in Mice.
   Daniel Santos, Alana Nguyen, Khoa Bui
   Faculty: Tzvia Abramson

9. mBM-Mesenchymal Stem Cells as a Vehicle for Immunization Of Mice Against *Bordetella pertussis*.
   Touhidul Molla, Sree Lakshmi Velandi Maroli.
   Faculty: Tzvia Abramson

10. Regulatory T Cells Facilitate Th17 Responses to *Bordetella pertussis* and Aid in Resolution of Whooping Cough in Mice.
    Hillary Gates, Elvia Silva, Andrew Smith.
    Faculty: Tzvia Abramson

    Gerard Nguyen, Mulatwa Haile, Morgan Chang, Shea Putnam
    Faculty: Katherine Wilkinson

    Kimberly Than, Anthony Kwon
    Faculty: Katherine Wilkinson

    Patricia Khounderchah, Armon Khorsaviani
    Faculty: Rachael L. French

14. The Effect of Larval Exposure to Nicotine on Development in *Drosophila melanogaster*.
    Lisa Wong, Ifechukwu Okeke
    Faculty: Rachael L. French

15. Characterization of a Novel Gene Required For Mating In *Drosophila melanogaster*.
    Sadaf Zaki, Peter Luu, Jaspal Sandhu
    Faculty: Rachael L. French
16. **Probing pH-dependent Mechanisms of Tumorigenesis and Metastasis in *Drosophila* cancer models.**
   Vivian Bui, Ismahan Chire, Hussein Abed, Martey Haw, Lyzett Lavenant, Donia Momen, Harnoor Virk
   Faculty: Bree Grillo-Hill

17. **Characterization of the Recurrent Beta-catenin His36Arg Mutation: Roles for pH-Sensing in Tumorigenesis.**
   Andin Josipovic, Delena Hoang, Daniel Orozco
   Faculty: Bree Grillo-Hill
   Collaborators: Katharine White (UC San Francisco), Diane Barber (UC San Francisco)

18. **Methods of Determining Bacterial Diversity Along a Precipitation Gradient in the Mojave Desert.**
   Stephanie Carigma, Guadalupe Hernandez, Kevin Le, Gabriela Lopez, Evelyn Padilla, Hobert Rapada, Nhi Vo
   Faculty: Sabine Rech

19. **Endothelial Cells Contribute to Early Lymphocytosis in Whooping Cough.**
   Aneesha Kulkarni
   Faculty: Jessica Westfall, Tzvia Abramson

**Department of Chemistry**

20. **Synthesis of Polymers Containing Precisely Placed Ketone Functional Groups Via ADMET Polymerization.**
    Angel Moreno, Paul Abarquez, Natsu Okuda
    Faculty: Chester Simocko

21. **Synthesis Amphiphilic Block Copolymers Via ALTMET Polymerization.**
    Melvina Lu, Andrew Pham, Josh Chen
    Faculty: Chester Simocko

22. **The Synthesis of High Chi Polymers and Their Thermal Stability.**
    Jasmine Nguyen, Sandy Rosa, Alexis Sarabia
    Faculty: Chester Simocko
    Collaborators: Dale L. Huber and Amalie Frischknecht

23. **Using Photoaffinity Labeling to Determine Target Proteins in *Pseudomonas aeruginosa*.**
    Kareem Aboulhosn, Zi Jun Chen, Rebecca Moore
    Faculty: Laura Miller Conrad

24. **Inhibition of Cationic Antimicrobial Resistance in *Pseudomonas aeruginosa*.**
    Husna Bassal, Cheyenne Dean, Sarah Matthews, Bianca Nguyen, Rodger Storment, Minh Tran
    Faculty: Laura Miller Conrad

25. **Disrupting Bacterial Communication by Inhibition of LuxI-Type Synthases.**
    Matthew Aguilar, Anthony Balistreri, Francisco McGee, Terrence Nguyen
    Faculty: Laura Miller Conrad

26. **Computational Models Characterizing the Role of Flexibility in Binding Peptides to TAR RNA.**
David Yu, Thanh Le, Manuel Rodriguez, Takayuki Kimura, Artem Soshnikov, Amos Park
Faculty: Brooke Lustig

27. **Computational Characterization of Alternative Structural Features in an Allosteric Dodecameric Polyamine Acetyltransferase SpeG.**
Jonathan Oribello, Mild Veeraklaew, Ruchi Gaur, Saira Montermoso
Faculty: Brooke Lustig
Collaborator: Misty Kuhn (San Francisco State University)

28. **Optical Properties of Mixed Sulfuric Acid/Organic Aerosols in the Upper Troposphere and Lower Stratosphere: Implications for Climate.**
Michelia Dam, Evelin Ventura, Mei Yun Li, Janaina de Sousa, Adrian Sandoval, Migel Clemente, Sai Somepalle, Kieu Ha, Anh Duong, Fatima Hussain, Alex Shen, Rebecca Spangler
Faculty: Annalise Van Wyngarden

29. **Effects of Cloud Formation on the Speciation and Kinetics of Glyoxal and Methylglyoxal Hydrates and Polymers.**
Kim Houghton, Patricia Goh, Weston Schweitzer, Khaled Khaled, Jeffrey Berry
Faculty: Annalise Van Wyngarden

30. **Cloning and Recombinant Expression of Aedes aegypti Serine Protease V (AaSPV), a Constantly Expressed Midgut Protease.**
Sze Wan (Jo) Wang, Alexis Venegas
Faculty: Alberto A. Rascón, Jr.

31. **Protein Expression of Cysteine Proteinases (CPZ and CPL1) Involved in the Molting Development Stages of Onchocerca volvulus larvae, a Human Nematode Parasite.**
Daniel Fong
Faculty: Alberto A. Rascón, Jr.

32. **Recombinant Protein Expression of C-terminally His$_6$-tagged EhCP1, a Key Cysteine Protease from Entamoeba histolytica.**
Saira Montermoso
Faculty: Alberto A. Rascón, Jr.

33. **Facile Fabrication of Lead-Halide Perovskite Solar Cells and PbSe Photophysics.**
Carlos Amarral, Michael Leroy, Han Le, Trenton Edwards
Faculty: Abraham Wolcott

34. **Photoelectrochemical Water Splitting For Hydrogen Generation With Zinc Oxide: Nanowire Arrays.**
Tung Nguyen, Grace Jeanpierre
Faculty: Abraham Wolcott

35. **Synthesis of Tetra-Substituted Borates for Covalent Bond Formation to Nanoscale Diamond Surfaces.**
Jesse Hnatek, Ikram Laaguidi, Hailin Zhou
Faculty: Abraham Wolcott
36. **Concentration Effects on DNA:DNA Binding as Measured by Isothermal Titration Calorimetry.**
   Jason Duong
   Faculty: Daryl K. Eggers

37. **Synthesis and Characterization of a Verdazyl Substituted Amino Acid Spin Probe.**
   Alissa Clemens, Jeffrey DaRos
   Faculty: David Brook

38. **Toward Spin Bearing Polymers as Components of Spintronic Systems.**
   Tim Hom, Amir Mansouri, Kelly Sai, Weiming (Alfred) Guan, Yu Bin (Gary) Chen
   Faculty: David Brook

39. **C-H Functionalization Via Light-Driven Biocatalysis and Photocatalysis.**
   Victor Sosa, Marya Melkie, Carolina Sulca, Justin Faris, Mallory Kato
   Faculty: Lionel Cheruzel

40. **Using a Directed Evolution Approach for the Optimization of Light-Driven P450 Biocatalysts.**
   Jennifer Li, Jeffrey Li, Michelle Chau, Lawrence Tang, Mallory Kato
   Faculty: Lionel Cheruzel

41. **Printing as a Tool for Science Education.**
   Marcus Le, Raquel Franco, Nicole Matouk, Nacia Rivas, Chris Wong
   Faculty: Elizabeth Pollom

**NOTE Posters 42A, 43A and 44A will be posted from 10:00AM to 11:30AM**

42A. **Bath Salts Analyzed Via HPLC and LC-MS Detection.**
    Margaryta Makhanov, Seiichiro Watanabe, Arlette Lopez
    Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek

43A. **Determination of Folic Acid Concentration in Tick Samples with Cogent DH Columns.**
    Joshua Topete, Seiichiro Watanabe
    Faculty: Maria-Matyska Pesek, Joseph Pesek
    Collaborators: Junyan Chen

44A. **Quantitative Analysis of Mesquite Pod Flour.**
    Tina Nguyen, Vivian Truong, Sunny Jarman, Doris Hong, Tony Mo
    Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek
    Collaborators: Gary Takeoka, USDA

**NOTE Posters 42B, 43B and 44B will be posted from 11:30AM to 1:00PM**

42B. **Preparative HPLC Methods With Type-C Columns.**
    Joshua Topete
    Faculty: Maria-Matyska Pesek, Joseph J. Pesek

43B. **HPLC/ESI-TOF-MS Identification and Quantification of Phenolic Compounds in Fermented/Non-Fermented Jaboticaba Fruit (Myrciaria cauliflora).**
44B. Evaluation of Perfluorinate and Non-Perfluorinate Columns.
    Tina Nguyen, Vivian Truong, Joshua Topete, Doris Hong, M
    Faculty: Maria T. Matyska-Pesek, Joseph J. Pesek
    Collaborators: Prof. Milton Hearn, Monash University, Melbourne, Australia.

Department of Computer Sciences

45. Periodicity of Network Traffic and Botnet Detection.
    Prathiba Nagarajan
    Faculty: Mark Stamp

    Aneri Chavda
    Faculty: Mark Stamp

47. An Improved Evil Maid Attack.
    Armen Boursalian
    Faculty: Mark Stamp

48. Minimizing Energy Consumption with QoS Guarantee for IoT Communications in LTE-A Networks.
    Gary Su
    Faculty: Melody Moh

49. Cost-Based Real-Time Parallel Workflow Scheduling for Cloud Data Centers.
    Lingfang Gao and Tejaswini Choudhari
    Faculty: Melody Moh

50. Load Balancing with Consensus and VM Allocation in Cloud Data Centers.
    Gurpreet Kaur and Saily Ghodke
    Faculty: Melody Moh

51. Enhancing Naïve Bayes Classifier with Word Embedding.
    Lihao Ge
    Faculty: Teng Moh

52. A Hybrid Approach of Facial Expression Recognition.
    Roshni Velluva Puthanidam
    Faculty: Teng Moh

    Chin Tsai
    Faculty: Melody Moh and Teng Moh
    Collaborators: Sponsored in part by Nokia Research Foundation
54. **Classifiers of Authentic and Cryptic Splice Sites in the Human Genome.**  
Pratikshya Mishra, Remya Mohanan, Tapomay Dey  
Faculty: Dr. Sami Khuri

**Department of Geological Sciences**

55. **Characterization of Volcanic Material from Fuerteventura as a Potential Mars Analog Site.**  
Jacob M. Danielsen  
Faculty: Ellen Metzger  
Collaborators: Janice L. Bishop, SETI Institute; L. Gruendler, SETI Institute

56. **Displacement History of the Pasayten Fault Zone in the North Cascades, Washington and British Columbia.**  
Natasha Budimirovic  
Faculty: Robert B. Miller

**Department of Mathematics and Statistics**

57. **A Comparative Study of Linear and Nonlinear Dimensionality Reduction Methods.**  
Xiaohong Liu, Yi Xiao  
Faculty: Guangliang Chen

58. **A Scalable Spectral Clustering Algorithm for Effective Grouping of Text Documents.**  
Shiou-Shiou Deng, Joseph Fitch, Qingbin Kong, Nathaniel Kotila, Qiuyu Li, Fengmei Liu, Ryan Quigley, Andrew Zastovnik  
Faculty: Guangliang Chen

59. **An Implementation of the Probabilistic Distance Algorithm for Mixtures of Student’s t-Distribution.**  
Christopher D. Rainey  
Faculty: Cristina Tortora

**Department of Meteorology and Climate Science**

60. **Airborne Radar Observations of Wildfire Plume Dynamics.**  
Bruno Rodriguez  
Faculty: Craig Clements  
Collaborators: (David Kingsmill, CU Boulder)

61. **Probing Aerosol Impacts on Fog in the San Francisco Bay Area.**  
Erica Burrows  
Faculty: Sen Chiao

62. **A Comparison of SAL Characteristics During Tropical Cyclone Formation.**  
Amy Ip  
Faculty: Sen Chiao

63. **Airborne In-Situ Measurements of Relative Humidity and Clouds Over the Southern Ocean.**  
John D’Alessandro  
Faculty: Minghui Diao  
Collaborators: Chenglai Wu, Xiaohong Liu (University of Wyoming), Jorgen Jensen (National Center for Atmospheric Research)
Department of Physics and Astronomy

64. **Simulations With Python.**
Maxwell Casebolt
Faculty: Ehsan Khatami

65. **Disordered Spin Models in the Thermodynamic Limit.**
Michael Mulanix
Faculty: Ehsan Khatami

66. **Magnetization Reversal in Arrays of Magnetic Nanowires.**
Robert Eimerl, Karl Muster
Faculty: Ranko Heindl

67. **Acoustic Beamforming for Sound Recording in Noisy Classroom Environments.**
George Condit
Faculty: Benedikt W. Harrer

68. **Frustration in Condensed Matter with Implications For Protein Folding.**
Stephanie Lorelli, Katie†Burrows
Faculty: Carolus Boekema

69. **Comparative Study of Broadband Photometry Relations for Ultra-Diffuse and Normal Galaxies in the Coma Cluster.**
Maria Stone
Faculty: Aaron Romanowsky

70. **Supermassive Black Holes and Compact Stellar Systems.**
Devin Cunningham, Christopher Dixon, Stephanie Striegel
Faculty: Aaron Romanowsky

**Acknowledgements:**

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A team of students from Chem 100W developed the first website for the Student Research Day and we thank them for their efforts. They are Mohammad Rizvi, Yash Parikh, Keshav Narula, and Rodion Yaryy. We also thank Francisco de la Calle and Debra Caires who advised the team.

*The COS SRD website may be viewed at: http://www.sjsu.edu/science/student-research-day/*